

# Outlook and Issues Confronting Future Development

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## Introduction

Although the Asian financial crisis temporarily reduced economic growth rates in South America during 1998-2000, virtually all of the region's economies are expected to register positive economic growth during the next decade. Growth prospects hinge on the outlook for the two largest economies in the region, Brazil and Argentina. Like many countries in South America, they are expected to continue to benefit from their successful evolution from semi-authoritarian political systems and managed economies to political pluralism and more market-oriented economies.

## Major Factors Governing Longrun Outlook

The positive long-term economic outlooks for both Argentina and Brazil are expected to carry over into their agricultural sectors, which should benefit from several factors common to their underlying structure (i.e., economic and institutional). These factors include:

- ◆ A growing predominance of large-scale commercial farms that are innovative, quick to adopt new technologies, and able to capture the economies of scale inherent in field crop production activities.
- ◆ Established marketing channels to international markets for most agricultural bulk commodities.
- ◆ Development of important internal waterways that could facilitate movement of bulk commodities.
- ◆ Multinational agribusinesses that have made significant investments in the agricultural sectors of both countries and that have a vested interest in the continued development of commercial agriculture.
- ◆ Large gaps in corn yields relative to the United States, which could enable significant productivity gains via more intensive use of agricultural inputs.

Brazil has four additional longrun factors that weigh in its favor. First, substantial undeveloped, but highly viable land remains available for agricultural production. Second, a strong domestic demand from a large, increasingly urbanized population is bolstered by an outlook for steady per capita income growth. Third, rapidly growing domestic poultry and pork sectors represent a robust source of demand for grains and protein meals. Finally, an extensive national agricultural research network that already has a proven track record, especially with soybeans, of successful varietal development and adaptation to tropical conditions.

At the same time, several factors could diminish agricultural prospects for Argentina and Brazil:

- ◆ Both countries rely predominantly on expensive overland truck transportation to move most bulk commodities to export positions. As a result, farm-gate-to-port charges will likely remain closely tied to fuel costs.
- ◆ Brazil's internal transportation and marketing infrastructure, and port facilities and operations, are still inefficient and costly, and will require substantial investment to support significant agricultural productivity growth.
- ◆ The Parana-Paraguay waterway's potential carrying capacity may be limited by environmental concerns and increasing traffic from Bolivia, Paraguay, and Mato Grosso do Sul.
- ◆ Both Argentina and Brazil still depend heavily on international markets as a source of demand, and have domestic storage capacity shortfalls limiting their ability to capture seasonal marketing opportunities.
- ◆ Both countries still have troublesome macroeconomic environments that include large public sector and agricultural debt. Brazil's agricultural sector debt was estimated at \$13 billion in 1999; Argentina's was over \$7 billion in 2000.

- ◆ Both countries have inadequate credit systems that limit domestic investment opportunities and hinder efficient resource management in their agricultural sectors.
- ◆ Argentina's currency is still partially tied to the strong U.S. dollar, which hurts Argentina's competitiveness with third countries.
- ◆ Argentina admitted to a recurrence of foot-and-mouth disease (FMD) in March 2001, after having just obtained FMD-free status. This bodes ill for the future of beef grain-finishing and unprocessed meat exports.

On balance, the outlook is positive. However, several "soft" assumptions underlie the current optimism, including a continuation of domestic macroeconomic stability in both countries, as well as continued global economic growth and trade liberalization.

### ***International Policy Developments Cloud Future Oilseed Trade Prospects***

Recent domestic policy shifts in China and the European Union (EU) are likely to alter the direction of international demand for oilseeds and their products. In addition, new farm legislation is slated for 2002 in the United States. As the world's leading producer and exporter of soybeans, any change in U.S. policy has immediate implications for international markets. Finally, further policy reforms under a new round of WTO trade negotiations, particularly new or stronger disciplines on domestic support, could influence oilseed and grain markets.

In 1999, China implemented a value-added tax (VAT) on soybean imports to promote the domestic vegetable oil processing sector. This favors imports of soybeans over soybean meal. A reversal of this policy dynamic is expected to occur upon China's accession to the World Trade Organization. Using the 1999 U.S.-China bilateral agreement as a likely formula for China's agricultural commitments, WTO accession would favor imports of vegetable oils over imports of beans and meal. The bilateral agreement established a tariff-rate quota (TRQ) of 1.72 million tons for soybean meal in 2000, which rises to 3.26 million tons in 2005. Within-quota imports would be subject to a duty of 9 percent, while above-quota imports would be assessed a duty of 74 percent in 2000, falling to 9 percent in 2006. The TRQ system for soybean meal would be eliminated by 2006 and converted to a bound 9-percent tariff rate. No quotas on soybeans and soybean meal were present prior to the bilateral agreement, and none were established

in the agreement. The crushing sectors of Argentina, Brazil, and the United States would all vie for increases in China's soybean meal and soybean demand.

The EU is the world's leading importer of soybeans and soybean meal. However, recent agricultural policy reform under Agenda 2000 is projected to slow growth in demand for soybeans and soybean meal through 2010 (USDA, 2001). Sharply lower internal support prices for cereals are expected to induce greater use of low-quality wheat in animal feed rations, trimming use of more expensive protein meals. The potential effect of Agenda 2000 policy changes is likely to be amplified by the continued weakness of the euro relative to the U.S. dollar. A weak euro favors consumption of domestically produced grains versus imported soybeans and soybean meal.

The policy debate surrounding the legislative agenda for the next U.S. farm bill has been underway for nearly a year. The current high support rate for soybeans relative to corn and other grains—as provided by the \$5.26-per-bushel loan rate—has engendered 4 consecutive years of record U.S. soybean plantings. U.S. and international market prices have declined to lows not seen since the early 1970s. If new legislation realigns commodity loan rates with their historic price relationships, U.S. soybean area could decline and prices strengthen.

Finally, further policy reforms under a new round of WTO trade negotiations, particularly new or stronger disciplines on domestic support, could influence oilseed and grain markets. The three members with the largest levels of agricultural support—the EU, Japan, and the United States—continue to provide large government outlays and price support programs. It is uncertain whether other WTO member countries will accept further liberalization without significant concessions on domestic spending from these three countries. Such concessions, in almost any form, would likely benefit Argentine and Brazilian producers.

### ***Producer Adoption of GMO Crops Could Have Market Implications***

Biotechnology, specifically genetic engineering, has launched speculation about the effects of the new technology on producer and consumer demand for genetically modified crops. Some biotech crops possess traits (e.g., insect resistance or herbicide tolerance) that can significantly reduce costs and risks for producers. However, consumer acceptance remains

uncertain, particularly in some major importing markets, like the European Union (EU), Japan, and Korea, where consumer and political groups have called for greater scrutiny over the use of biotech crops in the food chain.

While Argentine producers are aware of the restrictions on biotech products in some importing markets, such concerns have not deterred them from adopting biotech varieties. Approximately 90 percent of Argentina's soybean production is from biotech varieties, and producers are clearly motivated by the savings generated by herbicide-tolerant soybean varieties as well as the environmental benefits from using less damaging chemicals. Cost savings attributable to biotech soybeans are estimated at about \$40 per metric ton, significantly larger than the \$8-per-ton premium received by producers for nonbiotech soybeans in Argentine markets (FAS, USDA, "Argentina Oilseeds and Products Annual report," 2001).

In contrast to the United States, herbicide-tolerant soybeans have not been patented in Argentina. As a result, Argentine producers are not charged technology fees to use the seed, and farmers are allowed to save seeds from one year to the next. Consequently, seed costs for biotech soybeans are significantly lower in Argentina than in the United States.

Argentine farmers have been slower to adopt biotech corn hybrids. An estimated 20 percent of the 2001 corn crop is planted to insect-resistant (Bt) corn hybrids, all of which are approved by the EU. Since 1998, Argentina has approved only new corn hybrids that are accepted in major export markets.

Given Argentina's current adoption rates of both corn and soybean biotech varieties, and a lack of sufficient storage capacity under an identity preservation (IP) system, the additional costs of implementing an IP system would limit the potential for Argentina to capture a market niche for nonbiotech corn or soybeans. However, the situation is quite different in Brazil, with respect to soybeans, where the isolated Center-West region can make a much stronger claim to biotech-free status.

In Brazil, the Government (GOB) currently prohibits commercial planting of genetically modified crops. However, the cost savings available to biotech soybeans likely contribute to a significant illicit flow of biotech seeds from Argentina into Brazil's South, where the climate is fairly similar. The share of

biotech soybean plantings in the South has been estimated by various trade sources at between 20 to 40 percent. Although Brazil's corn crop appears to be predominantly nonbiotech, other nonbiotech producers such as South Africa and Eastern Europe would likely provide stiff competition for any future international market niche.

Approval for the commercial planting of biotech crops in Brazil is presently tied up in court. However, in late 2000 the GOB established the legal underpinning for the official biosecurity committee, the CTNBio, to make such decisions ((FAS, USDA, "Brazil Oilseeds and Products Annual report," 2001)). The government has also granted field trials on about 800 biotech projects—90 percent devoted to improving tropical corn varieties (Taylor, 2001).

Livestock markets also could be affected by biotech developments, particularly the potential use of biotech feed grain varieties in animal feed. While there is no scientific evidence that meat produced from biotech feed grains is in anyway unsafe or different from "nonbiotech" beef, consumer concerns and preferences could combine to generate a market premium for grass-fed beef. In such a market, Argentina and Brazil would compete for any niche premiums with ample grass-fed supplies from Australia and New Zealand.

### ***Issues Surrounding the Longrun Outlook for Brazil***

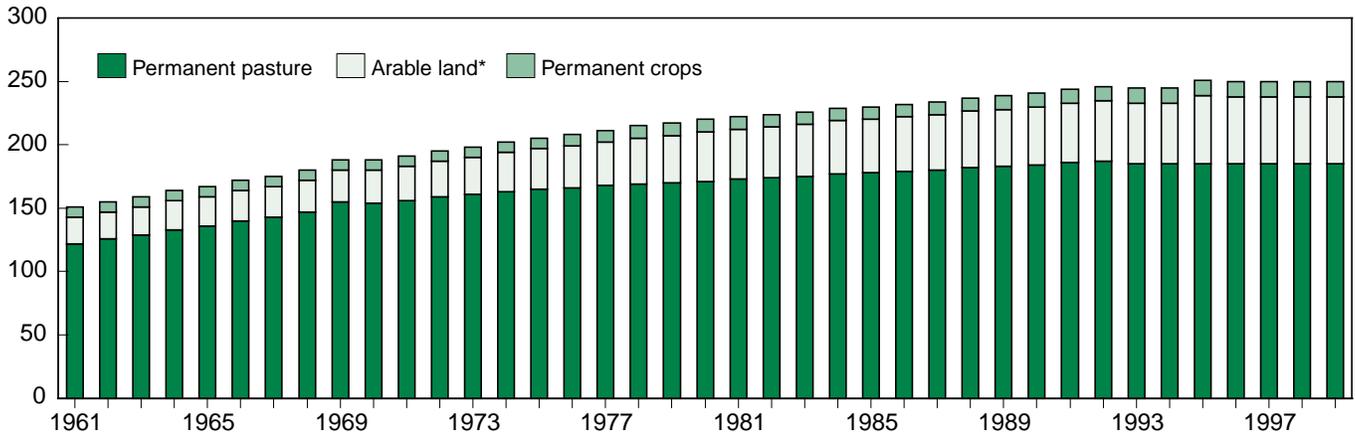
Brazil's agricultural production prospects are extremely favorable in the long term, and are based principally on continued expansion of the agricultural land base (fig. F-1). Brazil still lays claim to substantial tracts of fairly accessible, potentially productive virgin scrubland. The conversion of this undeveloped land to agriculture is expected to continue unabated through the next decade and beyond, leading to further gains in field crop area and in cultivated pastures to support livestock expansion.

The low international commodity prices of the past 3 years have likely slowed land conversion in the Center-West, but several factors suggest its resumption. First, there appear to be very low opportunity costs to bringing new land under production. Second, the promise of infrastructure development in the Center-West suggests higher land prices in the future, making land investment appear profitable. Third, investment in land remains a useful hedge against the threat of inflation which, although greatly reduced

Figure F-1

**Brazil's agricultural land use pattern, 1961-99**

Mil. hectares



\*Arable land refers to land under cultivation or in a cropping rotation.

Source: FAO, FAOSTATS.

from past levels, has not entirely disappeared. Finally, internal demand for soy meal and feed grains is destined to grow as Brazil's large poultry and pork industries respond to surging domestic and international demand.

Perhaps most important to future land expansion is the pace at which Brazil improves its transportation infrastructure, particularly into the interior. Waterway and railroad improvements, as they occur, are expected to make more agricultural production accessible to export terminals at competitive prices. Projects already underway are beginning to have an impact, particularly the Madeira-Amazon route designed to move west-central Mato Grosso soybeans via a waterway from Porto Velho to oceangoing vessels coming up the Amazon. But many questions remain. How fast will investment move into infrastructure development? Will the level and pace of investment in the transportation and market infrastructure be sufficient to support an expanding soybean industry? Are public or private credit limitations a potential bottleneck?

In addition to transportation infrastructure, new investment is needed in storage and handling facilities along the marketing chain, and in port facilities. Despite improving Brazilian port loading and handling infrastructure, charges remain high relative to Argentine and U.S. ports.

Continued land expansion raises concerns about long-term agricultural productivity, particularly in a humid tropical setting with its potential for disease and pest problems. Will plant breeding keep pace with the expansion into new areas? The GOB's EMBRAPA and privately funded research groups appear poised to push agricultural research forward. However, intellectual property rights are clearly an issue. Widespread "brown-bagging" of existing technologies reduce private research incentives.

As more productive land in the Center-West comes under cultivation, national average yields and production of soybean, cotton, and corn should increase. The share of new land development dedicated to soybeans will depend on two principal factors: production financing and relative market prices. Soybean producers generally receive considerable support from buyers, while cotton producers receive extended payment terms on input purchases from suppliers. In contrast, corn production receives little support from either buyers or input suppliers. As a result, soybeans and cotton are given preference by Brazil's growers over summer-crop corn (November-April). Safrinha, the winter-crop corn (February-August), is more widely grown in the Center-West as a second crop. However, it is a high-risk venture that attracts minimum investment (e.g., fertilizer use) due to the lack of dependable winter rainfall in the region.

Growing domestic food, feed, and industrial demand for corn have generated strong price incentives for corn relative to soybeans. In Mato Grosso, the soybean-to-corn producer price ratio averaged 1.75 from 1982 through 2000 compared with 1.9 in Parana (fig. F-2). While different cost structures make direct comparisons of regional price ratios less meaningful, the soybean-to-corn price ratio in the United States has averaged slightly over 2.5 since 1982. High corn yields in the U.S. explain much of the difference in price ratios.

The future of Brazil's corn industry hinges on the success of tropical corn varieties. Anecdotal evidence suggests that yields of 150-160 bushels per acre are not uncommon on the large commercial farms of the Center-West (compared with a U.S. national average of 130-135 bushels/acre). Further yield gains could stimulate the Brazilian corn industry. However, high-yielding corn's heavy dependence on fertilizer and other inputs makes it a considerably more expensive and risky alternative to soybeans and cotton.

Brazil's agricultural sector is rapidly modernizing, driven in part by private agricultural research. Meanwhile, a broader-based increase in per capita incomes is expected to boost consumption of livestock products, which translates directly into increased demand for feed grains and protein meals. Similarly, continued success in exporting beef, pork, and poultry will also increase Brazil's domestic absorption of feedstuffs. In addition, improvements in infrastructures and market delivery systems will generate efficiency gains

and greater profitability. Continued profitability in the grain and oilseed sectors will eventually be capitalized into land values, thereby raising operating costs and restraining competitiveness. However, the tremendous extent of Brazil's untapped land base and the huge pool of unskilled and semi-skilled labor suggest a cost structure advantage that should endure well into the future.

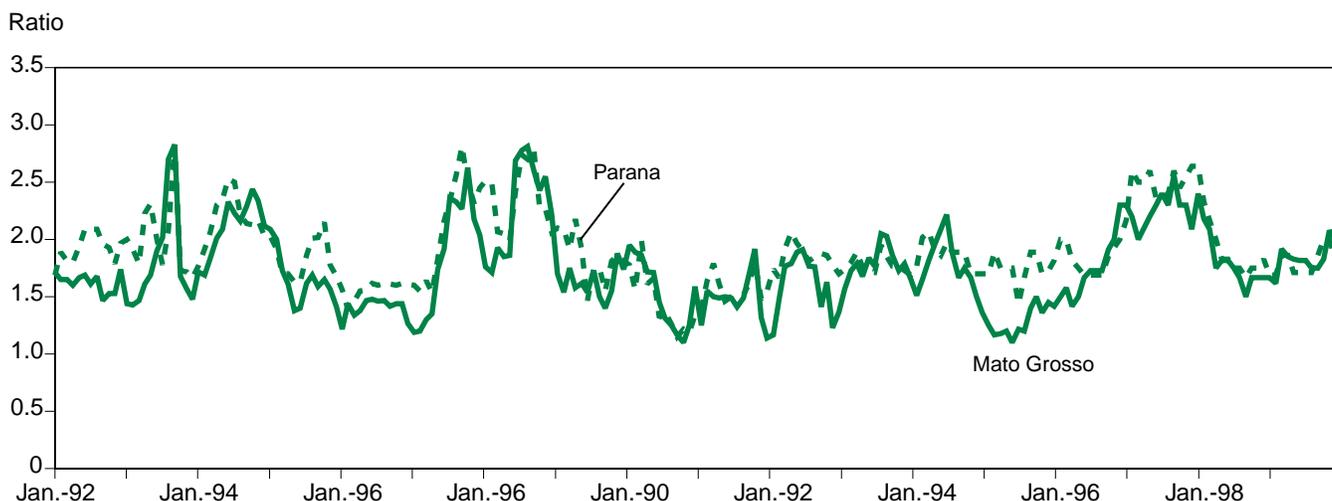
### *Issues Surrounding the Longrun Outlook for Argentina*

Most arable land in Argentina is already integrated into the agricultural sector. Corn, soybeans, and wheat must compete with pasture land as well as minor oilseed and coarse grain crops. A continuation of expanding field crop harvested area in Argentina—up over 16 percent from 1995 to 1996 (to a then-record 23.1 million hectares), and rising to an estimated 24.4 million hectares in 2001—hinges on several factors. Will further reductions in field crop abandonment occur? Are further increases in second-crop soybeans likely? How likely are further shifts away from the traditional crop-livestock rotation? Will marginal shifts out of permanent pasture and into field crop cultivation continue? Are further cost savings available from transportation and marketing improvements? Is further yield growth likely? Finally, is a *bona fide* currency devaluation imminent and what effect would it have on export competitiveness?

At first glance, it would appear that Argentina's expansion in crop area has about run its course.

Figure F-2

#### **Ratio of soybean-to-corn producer prices: Mato Grosso and Parana**



Source: Fundacao Getulio Vargas.

Abandonment rates for feed grains and soybeans in Argentina are still above U.S. levels, while the Argentine abandonment rate for wheat planted area is below the U.S. rate. To the extent that Argentine producers can replicate U.S. abandonment rates, some modest decline in abandonment rates for corn, sorghum, and soybeans is achievable. However, barring any new and dramatic genetic breakthroughs, double-cropping of soybeans appears to be near a maximum sustainable level at about 2.4 million hectares, with little room left for anything but marginal expansion.

Relative prices will continue to determine the land mix among wheat, corn, soybeans, other coarse grains, oilseeds, and pasture land. However, livestock dynamics will be critical in the evolution of Argentina's field crop area. In 1999, only about 10 percent of beef production was finished in feedlots. Any shift in incentives to spur feedlot development and grain finishing could move more pasture land to row crop production. A shift of just 1 percent to cropland from Argentina's 142 million hectares of permanent pastureland (FAO) would result in a 5-percent increase in area planted to row crops (fig. F-3).

Growth in demand for higher grades of red meat in international markets—generally a function of income growth—may spur greater investment in feed lots and grain feeding in Argentina. Reforms have already set

the stage for just such a stakeoff. In 1990, the Argentine National Animal Health Service initiated a comprehensive foot-and-mouth disease (FMD) vaccination program. The presence of FMD had resulted in an effective ban of Argentine fresh and frozen beef from world markets. By August 1997, there had been no outbreak of FMD in over 3 years. At that time the United States announced that it would begin importing fresh boneless beef from Argentina under a 20,000-ton quota after more than a 60-year prohibition.

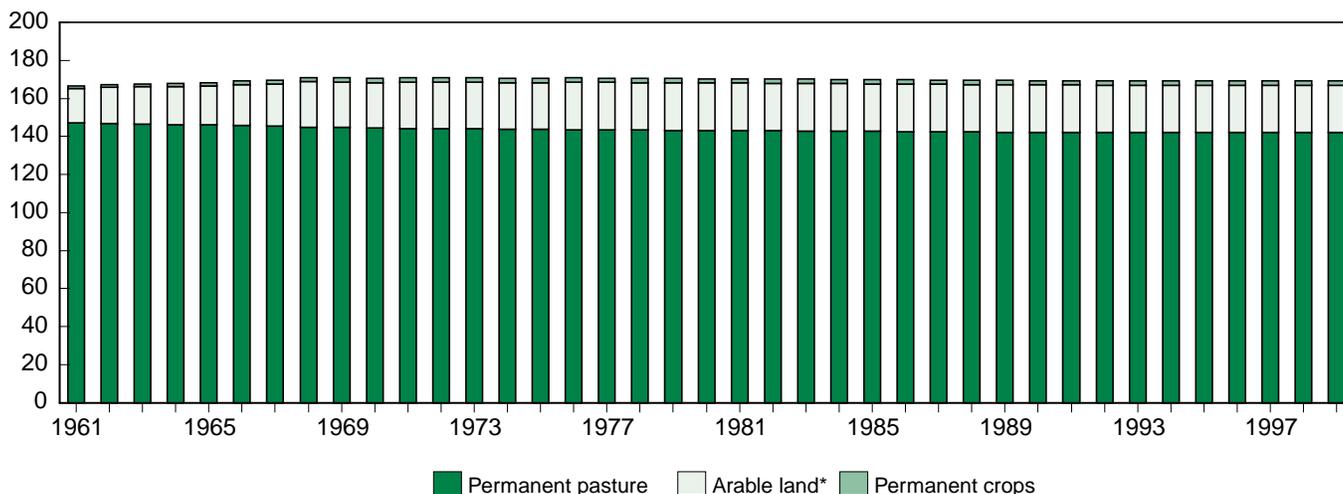
In 2000, Argentina attained FMD-free status, but in March 2001, the GOA confirmed a widespread outbreak of FMD, forestalling any potential meat-export takeoff and suggesting that more price weakness in the livestock sector could foreshadow further field crop gains.

Improvements in Argentina's transportation/marketing infrastructure and the transmission of international prices since economic reforms and privatization have translated into improved farmgate prices for the more export-oriented field crops. Certainly this development has contributed to Argentina's dramatic acreage expansion of recent years. Argentina's transportation infrastructure, which has largely been privatized, continues to be upgraded to handle the expanding supply of agricultural products. However, most of the price savings from transportation improvements are likely played out. The condition and throughput capacity of inland

Figure F-3

### Argentina's agricultural land use pattern

Mil. hectares



\*Arable land refers to land under cultivation or in a cropping rotation.

Source: FAOSTATS, FAO.

## USDA's Longrun Baseline Projections

USDA annually provides long-run baseline projections for the U.S. agricultural sector. The most recent projections, *USDA Baseline Projections to 2010* (USDA, February 2001), cover 2001 through 2010 and include projections of international trade in major agricultural commodities and a discussion of the economic behavior (production, consumption, and policy) underlying those trade projections. These projections were completed in October 2000 based on policy decisions and other information known at that time.

USDA's 2001 baseline projections were completed prior to the research that underlies this report. As a result, they do not incorporate all of the forward-looking information presented in this report. In particular, the projections assume only modest

growth (under 1 percent per year) in total gross cropped area in Brazil. In addition, recent developments in Brazil's corn and cotton sectors are noticeably absent from the 2001 projections. As a result, USDA's 2001 baseline projections may be viewed as a conservative projection of field crop growth potential in Brazil.

Higher total gross cropped area expansion rates will be tested in simulations of the ERS Country Linker System of models and presented as part of the 2002 USDA baseline exercise (forthcoming, February 2002).

Interested readers should refer to the ERS website at <http://www.ers.usda.gov/Briefing/Baseline/> for further information concerning USDA baseline activity and a detailed description of the assumptions and projections.

roadways appears to have improved under privatization, but expensive tolls have offset savings from fewer delays and truck breakdowns.

Port charges in Argentina are now on par with those of the United States. Privatization of inland transportation has improved waterways and lowered costs, but the Parana-Paraguay waterway must also continue to serve expanding grain and oilseed shipments from Paraguay, Bolivia, and Mato Grosso do Sul.

Although the potential for field crop expansion appears limited, especially compared with Brazil, Argentina can still increase its corn production through yield growth. Input-use levels lag U.S. and Brazilian rates. The agricultural sector is heavily indebted, and high interest rates and low agricultural prices have farmers in a cost-price squeeze that inhibits increased input use. Varietal improvements and seed development for corn will also be critical to closing the yield gap.

A final uncertainty related to Argentina's longrun competitiveness is its convertibility regime, which had pegged the peso to the U.S. dollar on a one-to-one exchange rate. It is surprising how competitive Argentina has remained in international export markets, despite the implicit tax on exports associated with the currency's link to the strong U.S. dollar.

Argentina's recent macroeconomic difficulties have eroded international confidence in the Argentine economy. In addition, Argentina's current economic

outlook suggests renewed inflation. After negligible inflation during 1996-2000, inflation is projected to be 6 to 10 percent during 2002 and 2003 (DRI-WEFA, May 2001). If inflation in Argentina outpaces that in the United States and international confidence erodes, the peso will again become overvalued (barring any unforeseen devaluation). The Argentine Government has been under some pressure (both politically and economically) to change its currency alignment back to a pegged-float or a free-float. Although the outcome is uncertain, a devaluation of the peso would clearly improve Argentina's competitiveness vis-à-vis the United States.

### *Longrun Projections for Brazil*

Under USDA's 2001 long-term projections, Brazil's continued soybean area expansion and production gains result in annual soybean export growth of 4 percent, from an estimated 10 million tons in 2000 to over 15 million tons by 2010 (table F-1; fig. F-4). World soybean exports are projected to grow at 1.3-percent, implying significant market-share gains by Brazil—from 22 percent in 2000 to 29 percent in 2010. Brazil exhibits similar strong growth in soybean product trade, increasing its share of world trade in soybean meal and soybean oil from 26 and 17 percent in 2000 to 28 and 23 percent in 2010.

Area planted to wheat in Brazil shows little or no growth through 2010. The temperate South faces more efficient wheat production from neighboring Argentina, and current varieties of wheat are not

**Table F-1—USDA baseline trade projections, major field crops, Argentina and Brazil, to 2010**

Trade	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Growth rate <sup>1</sup>
	<i>Million metric tons</i>										<i>Percent</i>
<b>Soybean</b>											
Argentina exports	3.7	3.4	3.2	3.3	3.3	3.3	3.3	3.3	3.1	2.9	-2.6
Brazil exports	11.1	11.3	11.3	11.7	12.3	13.0	13.4	14.2	14.5	15.3	4.0
World exports	47.1	47.8	48.4	48.9	49.2	49.9	50.4	51.5	51.8	52.7	1.3
<b>Soy meal</b>											
Argentina exports	15.3	15.5	15.8	16.0	16.6	16.6	17.1	17.4	17.9	18.4	2.4
Brazil exports	10.4	10.6	10.8	11.2	11.3	12.2	12.6	13.1	13.7	14.2	3.5
World exports	41.4	42.3	43.2	43.9	44.7	45.8	46.8	47.9	49.1	50.3	2.3
<b>Soy oil</b>											
Argentina exports	3.2	3.3	3.3	3.4	3.5	3.5	3.6	3.7	3.8	3.9	2.5
Brazil exports	1.4	1.4	1.5	1.6	1.7	1.9	1.9	2.1	2.2	2.3	6.1
World exports	8.0	8.2	8.5	8.7	8.9	9.1	9.2	9.4	9.7	9.9	2.5
<b>Rice</b>											
Argentina exports	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.0	8.8
Brazil imports	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	3.4
World exports	25.0	25.5	26.0	26.5	27.1	27.6	28.2	28.7	29.3	30.0	1.9
<b>Wheat</b>											
Argentina exports	10.5	10.7	10.9	11.1	11.2	11.5	11.7	11.8	12.0	12.0	1.3
Brazil imports	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	9.1	1.8
World exports	102.7	105.1	107.3	109.0	110.6	112.5	114.8	117.3	119.7	122.1	1.7
<b>Corn</b>											
Argentina exports	9.7	10.5	11.6	12.3	13.2	14.0	15.0	15.5	16.0	16.5	6.6
World exports	73.5	74.5	75.9	78.0	80.1	82.9	86.0	89.3	91.9	94.6	2.8
<b>Sorghum</b>											
Argentina exports	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.3	-7.8
World exports	7.7	7.7	7.7	7.7	7.8	7.9	9.1	8.3	8.5	8.8	2.5
<i>Million bales</i>											
<b>Cotton</b>											
Argentina exports	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	3.2
Brazil imports	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.3	1.3	1.3	2.8
World imports	28.4	28.8	29.0	29.3	29.6	29.9	30.3	30.7	31.1	31.6	1.3

<sup>1</sup>Annual marketing year growth rate based on log-linear regression on trend.

Source: *USDA Baseline Projections to 2010* (USDA, February 2001).

economical in the tropical setting of the country's interior. As a result of limited wheat production growth in the face of strong urbanization and income growth, Brazil's wheat imports are expected to grow at about 1.8 percent annually, reaching 9.1 million tons by 2010. This import level maintains Brazil as the world's leading wheat importer throughout the projection period. Domestic rice production also fails to keep pace with rapidly growing domestic demand. As a

result, rice imports grow at a 3.4-percent annual rate to over 1.1 million tons by 2010.

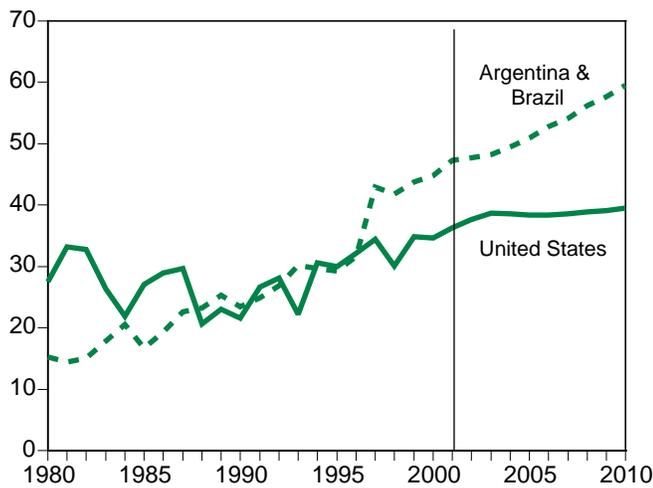
Despite recent signals that Brazilian cotton production is prepared for a dramatic takeoff in the Center-West, its realization is not reflected in baseline projections. Instead, cotton imports are expected to continue to grow throughout the projection period (table F-1).

Brazil's livestock sector is projected to show very robust growth through 2010, resulting in expanding

Figure F-4

**Soybean and product exports from Argentina and Brazil are projected to continue growth through 2010**

Mil. metric tons



Historical (1980-2000) and projected (2001-10) exports of soybean and soymeal as soybean equivalents.

Source: *USDA Agricultural Baseline Projections to 2010*.

exports for poultry, pork, and beef. Poultry exports are expected to rapidly grow at a 3.6 percent annual rate, followed by pork exports at 2.8 percent annual growth, and beef exports at 1.8 percent annual growth (table F-2). While much of the growth in beef exports likely results from continued expansion of Brazil's permanent pastureland, expanding poultry and pork exports imply increased feeding of corn and protein meals.

**Longrun Projections for Argentina**

Under USDA 2001 baseline projections, Argentina's production of corn, soybeans, and wheat expands through 2010. Area continues to shift out of sorghum, barley, and minor coarse grains, as well as sunflower and minor oilseeds, and into corn and soybeans (a pattern that dominated the last half of the 1990s). Wheat area remains fairly stable. Yields of wheat and corn are expected to grow only modestly due to a continuation of limited input use. Argentina could rapidly close the gap in corn yields with the United States via more intensive input use, but this is not expected under the baseline assumptions.

As a result of the acreage shifts, Argentina's corn exports grow 6.6 percent annually from 2000 to 2010, whereas sorghum exports decline by nearly 8 percent per year (table F-1). Argentina continues to emerge as a corn

exporter during the projection period, particularly after 2005 when China's net corn exports are projected to end. Argentina's share of world corn exports grows from 12 percent in 2000 to 17.4 percent by 2010 (at 16.5 million tons of exports), becoming the world's second-largest corn exporter behind the United States. Argentina's wheat exports grow 1.3 percent annually, reflecting stable area and only gradual yield growth. However, this growth is still sufficient to maintain a global market share of 7.5 percent throughout the projection period.

Argentina's soybean area and production growth are expected to slow substantially through 2010, while soybean yields rise only marginally. As a result, Argentina refocuses its export emphasis from soybeans to products—soymeal and soyoil—to capture a greater share of the value-added from crushing. Soybean exports decline 2.6 percent annually, falling from 4.5 million tons in 2000 to only 2.9 million tons in 2010, while soymeal and soyoil exports expand 2.4 and 2.5 percent annually. As a result, Argentina's share of world soybean trade declines from 10 percent in 2000 to under 6 percent in 2010, whereas its soymeal and soyoil exports are expected to hold fairly steady at 37 and 39 percent.

Argentina's beef and veal production and exports are projected to grow at a 1.4 percent per year during the baseline period (table F-2).

Rice area in Argentina expands—mostly in the traditional rice-growing Provinces of Entre Rios and Santa Fe—to mid-1990s levels under strong international market incentives. The growth in production is destined almost entirely for the international market—principally Brazil—as Argentina's rice exports more than triple to just over 1 million tons in 2010, up from only about 275,000 tons in 2000.

Argentina's cotton area also expands, principally in the northern Provinces of Chaco and Santiago del Estero where the hotter, wetter (almost tropical) climate favors cotton production over most other field crops. As with rice, the additional cotton production is moved into international markets—also predominantly Brazil—at a growth rate of 3.2 percent. Exports reach about 800,000 bales by 2010.

**Conclusions**

Field crop producers in Argentina and Brazil have expanded crop area and output substantially in the past 5 to 10 years at unsubsidized prices and without the

**Table F-2—USDA baseline trade projections, livestock products, Argentina and Brazil, to 2010**

Trade	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Growth rate <sup>1</sup>
	<i>Million metric tons</i>										<i>Percent</i>
<b>Beef</b>											
Argentina exports	390	399	408	418	417	417	417	424	427	431	1.4
Brazil exports	675	699	742	774	766	763	752	760	772	782	1.8
Major exporters	5,296	5,468	5,607	5,741	5,807	5,900	5,994	6,085	6,172	6,258	1.9
<b>Pork</b>											
Brazil exports	100	102	104	106	110	112	114	116	118	120	2.8
Major exporters	3,103	3,065	3,025	3,087	3,145	3,232	3,289	3,349	3,412	3,480	1.5
<b>Poultry</b>											
	<i>1,000 metric tons, ready to cook</i>										
Brazil exports	986	987	991	1,002	1,501	1,103	1,160	1,210	1,264	1,296	3.6
Major exporters	6,218	6,356	6,460	6,579	6,738	6,912	7,061	7,206	7,352	7,480	2.1

<sup>1</sup>Annual calendar year growth rate based on log-linear regression on trend.

Source: *USDA Baseline Projections to 2010* (USDA, February 2001).

benefit of loan deficiency payments, subsidized crop insurance, production flexibility contract payments, or emergency supplemental income payments. Increased South American supplies have no doubt contributed to the low agricultural commodity prices of recent years, which have squeezed market returns in the United States and triggered large government payments to the U.S. agricultural sector. So, how will U.S. field crop producers remain competitive as land values continue to rise (due, in large part, to the capitalization of record government payments), while Brazil and Argentina

continue to lower transport and marketing costs and/or benefit from a depreciating currency?

Clearly, the tremendous potential for further growth of South American field crop output, if realized, could have profound implications for global trade and U.S. farm exports, prices, and incomes. The impact on future U.S. budgetary outlays under current farm programs and on options for future farm legislation could also be profound.